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PHYSICAL COMPOSITION OF FRYER RABBITS OF PRIME, CHOICE, AND COMMERCIAL GRADES **C & R-PREP.**

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In areas where rabbits are produced commercially it is the usual practice, for the medium-weight and heavy breeds, to market the young when about 2 months old without previously weaning them. When full fed, these 8-week-old animals weigh about 4 to 5 pounds and are known as fryer rabbits. They comprise more than 85 percent of the domestic rabbits marketed.

It was deemed advisable to obtain definite information on the composition of this type of meat, especially in relation to the recognized market grades. In June 1947, 50 White New Zealand fryer rabbits of each of the 3 grades, Prime, Choice, and Commercial--now designated A, B, and C grades--were selected by a committee of four from a commercial rabbit pick-up truck operating in the Fontana, Calif., area. A random selection of 30 rabbits from each of these groups of 50 was made for each grade. Individual live weights of these 90 rabbits were obtained and the animals were slaughtered in the early afternoon and dressed according to regular commercial practice. The carcasses were properly marked for later identification and were washed in a tub with circulating tap water for 40 minutes. They were then cooled overnight at temperatures of 32° to 34° F.

The following day carcass weights were obtained, the kidneys were removed and the carcasses were cut up for packaging individually in special cartons wrapped with cellophane 300 MSAT No. 87, the drugstore type of wrapping being used. The packages were placed in an insulated shipping box for freezing by dry ice, repacked with dry ice the next day, and shipped to Beltsville, Md., with instructions for dry ice repacking in transit. On arrival, the carcasses were still frozen but the dry ice had dissipated. The meat was held in frozen condition until the physical analysis could be made.

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1/ Formerly issued as A. H. Correspondence Aid No. 37 by O. G. Hankins, R. L. Hiner, G. S. Templeton and C. E. Kellogg, Bureau of Animal Industry, USDA.

In the preparation of the carcasses for shipment to Beltsville, the hind legs were removed by cutting squarely across the carcass immediately in front of the hip joint and the loin was cut from the forequarters immediately back of the last rib. The hind legs were separated, the forelegs were removed from the forequarter portion and the remainder of that portion divided into the left and right sides, whereas the loin portion was left intact. Thus as received for study at Beltsville the forequarters consisted of four pieces, the loin of one piece, and the hindquarters of two pieces.

When working with each of the three major divisions of the carcass, -- forequarters, loin, and hindquarters -- a painstaking separation of the fatty tissue, lean meat, and bone in the raw state, was made by experienced meat research personnel and the three components were weighed to an accuracy of 1 gram. By utilizing these weights and the live and carcass weights as well as those of the forequarters, loins, and hindquarters themselves, calculations were made of the proportions of the components as reported in tables 1, 2, and 3. Similar calculations were made of the yields of heart, kidneys, and liver as shown in tables 1 and 2.

A second year's study of fryer rabbits was made in 1948. The procedure was similar to that of the previous year except that the A and B grades of rabbits were obtained from the young produced at the U. S. Rabbit Experiment Station, Fontana, Calif. The rabbits of C grade were selected from 800 collected by a commercial pick-up truck. A committee of three graded the rabbits alive and as dressed carcasses. The carcasses were washed for only 20 minutes and were stored in a commercial cooler overnight. After being cut up, packaged, and frozen in a commercial cold storage plant, the rabbits were shipped to Beltsville, Md. in an insulated shipping box refrigerated with dry ice. The analytical work on the carcasses was performed as in 1947.

Table 1 shows the average physical composition of the 3 grades of rabbits with the yields of the various components calculated on a live weight basis. Not only are the results for 1947 and 1948 shown, but also the averages for the 2 years' work. These averages in all instances are based on data from 60 animals and are believed to represent with reasonable accuracy the values that would be obtained from other groups of A, B, and C grades of fryer rabbits.

The essential difference between table 2 and table 1 is that in the former the yields are based on carcass weight. In table 3 the percentages of the several components are based on the weight of the forequarters, loin, or hindquarters as the case may be.



To throw further light on fatness, 10 carcasses were selected at random from the 30 representing each grade in the 1948 experiment. From each of these selected carcasses a sample of the large back muscle (longissimus dorsi) and a sample of the total edible meat were taken for determination of fat (ether extract) content. Results showed that on the average the lean meat of the A grade rabbits, as represented by the muscle mentioned, contained 0.80 percent of fat whereas that of the B and C grade rabbits contained 0.68 and 0.51 percent, respectively. The corresponding values for fat content of the total edible meat were 10.21, 8.09, and 6.32 percent. All of these percentages appear low but probably should be expected in view of the fact that when slaughtered these animals were quite young and immature and had made rapid growth. Microscopic examination supported the chemical findings that the muscle tissue contained very small proportions of fat.

Table 1. - Average physical composition of A, B, and C grades of fryer rabbits  
(Yields calculated on a live weight basis)

Items	Grades and years represented											
	A (Prime)			B (Choice)			C (Commercial)					
	: 1947	: 1948	: Average	: 1947	: 1948	: Average	: 1947	: 1948	: Average	: 1947	: 1948	: Average
Number of rabbits	: 30	: 30	: 60	: 30	: 30	: 60	: 30	: 30	: 60	: 30	: 30	: 60
Average live weight ----- pounds	: 4.48	: 4.80	: 4.64	: 4.02	: 4.23	: 4.12	: 3.54	: 4.08	: 3.81			
Average chilled carcass weight "	: 2.55	: 2.81	: 2.68	: 2.24	: 2.37	: 2.31	: 1.80	: 2.19	: 1.99			
Average dressing percentage	: 56.90	: 58.46	: 57.71	: 55.87	: 56.07	: 55.97	: 50.72	: 53.60	: 52.27			
Yields of carcass components:												
Separable fat ----- percent	: 3.57	: 3.92	: 3.75	: 3.15	: 2.90	: 3.02	: .77	: 2.24	: 1.56			
Separable lean -----	: 35.61	: 38.68	: 37.20	: 34.37	: 37.08	: 35.76	: 32.58	: 34.82	: 33.78			
Total edible meat -	: 39.18	: 42.60	: 40.95	: 37.52	: 39.98	: 38.78	: 33.35	: 37.06	: 35.33			
Bone -----	: 11.63	: 11.39	: 11.50	: 11.21	: 11.87	: 12.04	: 11.69	: 11.22	: 11.44			
Heart -----	: .34	: .32	: .33	: .34	: .35	: .34	: .34	: .33	: .33			
Liver -----	: 4.08	: 2.90	: 3.47	: 3.93	: 2.76	: 3.33	: 3.65	: 3.81	: 3.74			
Kidneys -----	: .74	: .85	: .80	: .81	: .90	: .86	: .84	: .83	: .84			
Forequarters -----	: 21.81	: 20.77	: 21.27	: 21.12	: 20.69	: 20.90	: 18.57	: 19.63	: 19.14			
Loin -----	: 9.70	: 11.66	: 10.71	: 9.61	: 10.52	: 10.08	: 8.50	: 9.73	: 9.16			
Hindquarters -----	: 19.36	: 21.65	: 20.54	: 19.14	: 20.79	: 19.98	: 18.09	: 19.03	: 18.59			

Table 2. - Average physical composition of A, B, and C grades of fryer rabbits  
(Yields calculated on a carcass weight basis)

Items	Grades and years represented											
	A (Prime)				B (Choice)				C (Commercial)			
	: 1947	: 1948	: Average	: 2 years	: 1947	: 1948	: Average	: 2 years	: 1947	: 1948	: Average	: 2 years
Number of rabbits	: 30	: 30	: 60	:	: 30	: 30	: 60	:	: 30	: 30	: 60	:
Average chilled carcass weight--pounds	: 2.55	: 2.81	: 2.68	:	: 2.24	: 2.37	: 2.31	:	: 1.80	: 2.19	: 1.99	:
Yields of carcass components:	:	:	:	:	:	:	:	:	:	:	:	:
Separable fat-----percent	: 6.28	: 6.70	: 6.50	:	: 5.64	: 5.17	: 5.40	:	: 1.52	: 4.18	: 2.98	:
Separable lean-----	: 62.58	: 66.17	: 64.46	:	: 61.51	: 66.14	: 63.89	:	: 64.22	: 64.95	: 64.62	:
Total edible meat-----	: 68.86	: 72.86	: 70.96	:	: 67.15	: 71.32	: 69.29	:	: 65.75	: 69.13	: 67.61	:
Bone-----	: 20.43	: 19.48	: 19.94	:	: 21.86	: 21.18	: 21.51	:	: 23.05	: 20.94	: 21.89	:
Heart-----	: .59	: .55	: .57	:	: .61	: .62	: .61	:	: .66	: .61	: .64	:
Liver-----	: 7.18	: 4.95	: 6.01	:	: 7.03	: 4.92	: 5.95	:	: 7.20	: 7.11	: 7.15	:
Kidneys-----	: 1.30	: 1.46	: 1.38	:	: 1.44	: 1.61	: 1.53	:	: 1.65	: 1.55	: 1.60	:
Forequarters-----	: 38.33	: 35.53	: 36.86	:	: 37.80	: 36.90	: 37.33	:	: 36.62	: 36.61	: 36.62	:
Loin-----	: 17.05	: 19.94	: 18.57	:	: 17.19	: 18.76	: 18.00	:	: 16.77	: 18.16	: 17.53	:
Hindquarters-----	: 34.02	: 37.04	: 35.60	:	: 34.25	: 37.08	: 35.71	:	: 35.66	: 35.51	: 35.57	:
	:	:	:	:	:	:	:	:	:	:	:	:

Table 3. - Average physical composition of forequarters, loin, and hindquarters of A, B, and C grades of fryer rabbits

Items	Grades and years represented											
	A (Prime)				B (Choice)				C (Commercial)			
	1947	30	1948	Average : 2 years	1947	30	1948	Average : 2 years	1947	30	1948	Average : 2 years
Number of rabbits	30	30	30	60	30	30	30	60	30	30	30	60
Forequarters:												
Separable fat-----percent	7.10	7.53		7.31	6.49	5.97		6.23	1.68	4.97		3.49
Separable lean-----	64.19	63.82		64.01	63.02	63.77		63.40	65.89	64.31		65.02
Total edible meat-----	71.29	71.35		71.32	69.51	69.74		69.63	67.57	69.28		68.51
Bone-----	28.59	28.52		28.55	30.17	30.02		30.09	32.12	30.51		31.23
Loin:												
Separable fat-----	12.48	12.89		12.71	11.12	10.21		10.64	3.63	8.71		6.52
Separable lean-----	74.04	75.42		74.82	73.68	76.34		75.10	79.72	77.68		78.56
Total edible meat-----	86.52	88.31		87.53	84.80	86.55		85.74	83.35	86.39		85.08
Bone-----	13.31	11.35		12.21	14.82	13.02		13.85	16.23	13.17		14.49
Hindquarters:												
Separable fat-----	4.22	3.93		4.06	3.71	2.84		3.25	.84	2.19		1.58
Separable lean-----	74.52	76.82		75.77	73.07	76.30		74.79	74.95	76.89		76.02
Total edible meat-----	78.74	80.74		79.83	76.78	79.14		78.04	75.79	79.08		77.60
Bone-----	21.18	19.14		20.07	23.09	20.66		21.79	24.03	20.78		22.25





